

The Monthly Evening Sky Map

A SCIENTIFIC JOURNAL AND EDUCATIONAL GUIDE IN ASTRONOMY FOR THE AMATEUR

Founded in 1905 by Leon Barritt

ALSO A STAR, CONSTELLATION AND PLANET FINDER MAP ARRANGED FOR THE CURRENT MONTHS - MORNING AND EVENING - AND PRACTICAL ANYWHERE IN THE WORLD
PUBLISHED QUARTERLY

Largest Circulation of any Amateur Astronomical Journal in the World

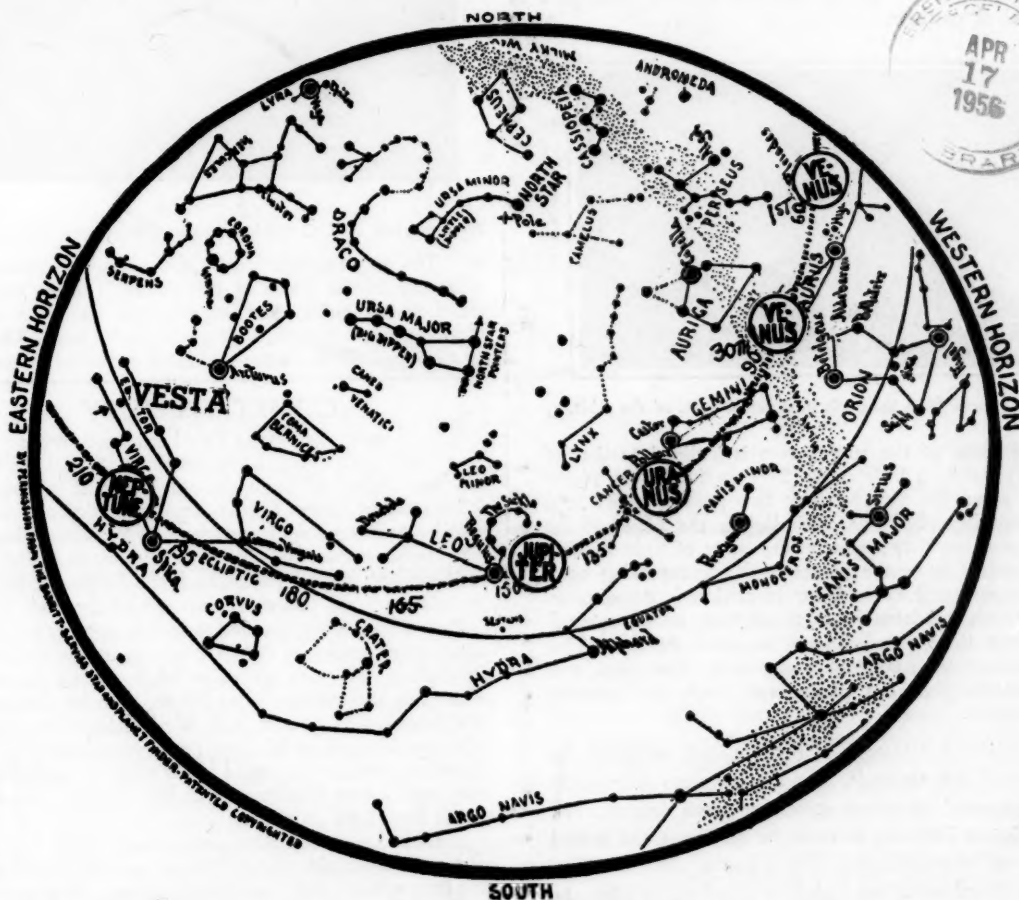
Entered as second class matter at Rutherford, N. J.

Vol. L Whole Number 488

RUTHERFORD, N. J., APRIL - MAY - JUNE - , 1956

\$2.00 PER YEAR
60 Cents Per Copy

EVENING SKY MAP FOR APRIL



AT 9:00 P.M., APRIL 1

8:00 P.M., APRIL 15

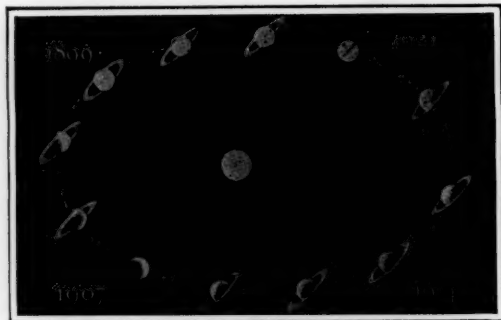
7:00 P.M., APRIL 30

Face South and hold the Map overhead, the top North, and you will see the stars and planets just as they appear in the heavens. The arrow through the two stars in the bowl of the Big Dipper points to the North Star, the star at the end of the handle of the Little Dipper.

This map is arranged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitude in Europe.

THIS FINE OPPOSITION OF SATURN

Saturn, encircled by a wonderful system of rings, is the most unusual planet in the solar system. In itself it is a huge world some 75,000 miles in diameter and second in size only to Jupiter (which is 88,000 miles in diameter). Physically, Saturn does not differ greatly from Jupiter—it presents the same belted and elongated appearance in a telescope. It is the unique ring system which almost surpasses the imagination. Fully 170,000 miles across, and 38,000 in breadth (from the inner edge of the inner ring to the outer edge of the outer ring), they, nevertheless, must be exceedingly thin. Estimates place the thickness at about 50 miles. Proof of their thinness has been achieved in several ways: stars occulted by the rings do not disappear as when occulted by a solid body such as the Moon, but continue to shine right through the densest portions; mathematical computations show them to have so little *mass* that they have no measurable action on the motion of Saturn's many satellites; and, on occasion the unlighted portion of the rings have been seen when the only light could be that of the Sun filtering through a thin layer of particles.

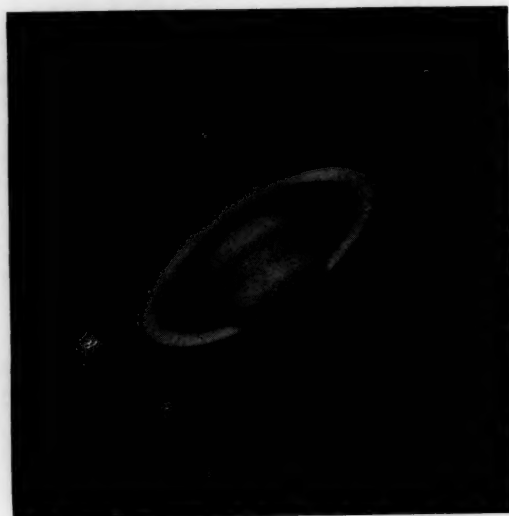


Saturn as seen from the earth in different parts of the orbit.

The plane of the ring system is inclined to that of Saturn's orbit by a little under 27° , so that as the planet revolves about the Sun we have two periods in its $29\frac{1}{2}$ year revolution when the earth lies in the plane of the rings. For a time they appear as thin lines of light sticking out of each side of the planet itself, disappearing completely when exact coincidence is achieved. About one-quarter revolution later the rings are most widely opened, and present their grandest show to earth dwellers. This year and next we have that opportunity. The rings will appear much as in our photograph, with the northern surface visible.

A powerful telescope is not required to show the brilliance of the spectacle. But the divisions among the three recognized rings are somewhat more difficult. The famous Cassini Division, between the outermost and second rings, is not very difficult as it is a gap of close to $1''$ of arc. It is spaced about one-eighth of the distance from the outer edge to Saturn's center. The innermost, or "Crepe" ring is tenuous and difficult. In our photograph there is a suggestion of it in a shadowy way where it crosses the face of the planet. Another interesting sight is the shadow of the planet on the ring surface. This effect is at a minimum at opposition and is most apparent near quadrature (next in the middle of August). Fairly high power is necessary.

As we have mentioned, Saturn has a large family of satellites, ranging down from Titan, larger than our Moon, to small, very faint fragments. Titan can be picked out easily with a six-inch telescope. As a clue, it will be in conjunction with Saturn on May 8th (south of the planet) and on the 26th (north of the planet), and will be about twice the apparent diameter of the rings away from the center of the planet.



SATURN

Photographed by E. C. Slipher, Lowell Observatory, Flagstaff, Ariz.

The only shortcomings at this opposition relate to the ellipticity of the globe of the planet. Though more flattened at the poles than Jupiter, this condition is only apparent when the rings are pretty well closed. This year, to all appearances, Saturn's globe is a perfect sphere.

COMET VISIBILITY

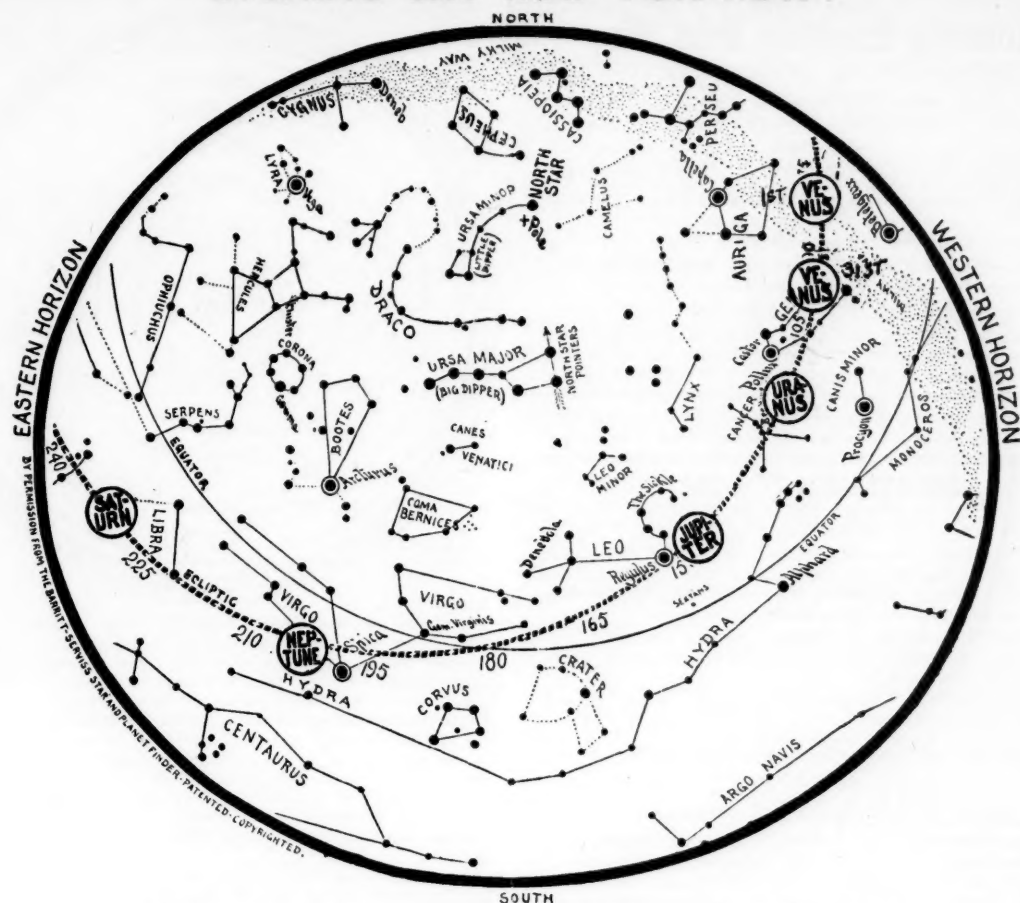
Two comet discoveries have been announced so far this year, and both have been made by that indefatigable searcher, Mrkos, of Lomnický štít. The first is actually the rediscovery of Comet Olbers, a periodic comet. It was first seen by Mrkos a few degrees west of Spica, in Virgo, as a very faint, diffuse object, five magnitudes fainter than predicted. So, Comet Olbers becomes Comet 1956a.

The second discovery announced by the Harvard College Observatory, credited to Mrkos, appears to be a new comet. Now known as 1956b, it was located in the Serpens-Ophiuchus area, some 20° or so south-west of Altair. This comet was also announced as diffuse, with no mention of a tail; magnitude, however, is 9. We had hoped to obtain an orbit computation by this time (or even confirmation of the discovery) so that we would know what its period of visibility and future brightness will be. However, no further details have been received.

There are several other comets still visible, but almost all are in a class with Comet Olbers—very faint, and observable only with powerful equipment. Among these are Comet Abell (1955b), magnitude 18, in southern Ursa Major; Comet Baade (1954h), magnitude 14, which moves from a point close to Aldebaran, to the neighborhood of Betelgeuse. Still visible, and also faint, are Comet Bakharev-Macfarlane-Krienke (1955f) in Cassiopeia, and Comet Honda (1955g) in Hercules.

As far as observational material suitable to small telescopes is concerned, our hopes must go with Comet Mrkos (1956b). But at the moment we don't know whether this object is fated to rise to brilliance or fade to obscurity.

EVENING SKY MAP FOR MAY



AT 9:30 P.M., MAY 1

8:30 P.M., MAY 15

7:30 P.M., MAY 31

Face South and hold the Map overhead, the top North, and you will see the stars and planets just as they appear in the heavens. The arrow through the two stars in the bowl of the Big Dipper points to the North Star, the star at the end of the handle of the Little Dipper. This map is arranged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitudes in Europe.

VESTA—THE NAKED-EYE ASTEROID

On about April 28th a 243-mile diameter planet, Vesta, comes to opposition in Virgo. Moreover, it is visible to the naked eye, as its magnitude is 6.1. Vesta must be composed of a very white, highly reflective substance, as it is considerably smaller than Ceres (485 miles in diameter), the largest minor planet, but is better than a magnitude brighter under the same circumstances. And, contrast this mite with its near neighbor in Virgo, Neptune. Neptune, with a diameter of 33,000 miles dwarfs this asteroid, but the former is 111,000,000 miles from the earth whereas Neptune is 2,700,000,000 miles away, and consequently Vesta is the brighter by a full magnitude and one-half.

Vesta was discovered by Olbers, at Bremen, on April 3, 1807. It was the fourth minor planet discovered. Thousands of asteroids have been detected since that date, but Vesta remains one of the very few to have received careful and painstaking determination of its orbit. Leveau and Perrotin made extensive investigations of its motion, and Leveau published elaborate tables, which permit computation of its future positions among the stars with high accuracy.

This spring Vesta describes a looping path just south of the equator, in Virgo. Our April evening sky map shows its position on the 26th of April. It is then almost exactly one-half degree north of Phi Virginis, a star of magnitude 5.0. Identification of the minor planet is simple; after locating Phi, use binoculars or a telescope, and look for a star a little fainter than Phi and a distance north equal to the apparent diameter of the full Moon. There is no other star in this immediate area anywhere near as bright as Vesta. Since the minor planet's motion among the stars is rapid (about one-quarter degree per day westward) there will be a noticeable shift in relation to Phi in a day or two. Then, on any clear, moonless night (the Moon is waning at this time) the observer will be able to pick out Vesta with the naked eye.

THE RUNAWAY STAR

A relatively insignificant star in Ophiuchus was discovered in 1916 by the famous American astronomer, E. E. Barnard, to have the largest proper motion known. This star alters its position among the background of stars so fast that it covers an arc of the sky equal to the Moon's apparent diameter, in 190 years.

The Monthly Evening Sky Map

FOUNDED IN 1905 BY LEON BARRITT

MRS. LEON BARRITT, Editor
Irving L. Meyer, Managing Editor

Subscriptions:

One year \$2.00; Two years \$3.50; Three years; \$5.00
(Canadian or foreign postage \$1.00 per year extra)

Please make remittances payable to "The Monthly Evening Sky Map"
and address all communications to
Post Office Box 88, Rutherford, N. J.

Published Quarterly at 69 Beckwith Place, Rutherford, N. J.
Telephone: WEbster 9-2694

Copyright Irving L. Meyer 1956

Entered as second class matter at Rutherford, N. J.

Vol. L April - May - June, 1956 Whole Number 488

All time is expressed in Eastern (75th Meridian) Standard Time.
Add five hours to convert to Greenwich Civil Time.

AMATEUR'S FORUM

BY IRVING L. MEYER, M. S.
APRIL 1956

THE SUN: opens the month in Pisces, just north of the equator. Its rapid north-eastwardly pace carries it far north of the equator by month-end—into the constellation Aries. It is 92.8 million miles away on the 1st; 93.6 million miles the 30th.

THE MOON: is at *apogee* (farthest from the earth) the 3rd, at a distance of 251,000 miles, and is at *perigee* (nearest the earth) the 15th at 229,000 miles.

Libration: Maximum exposure of the region on the Moon's limbs takes place as follows:

April 8 South limb, 6.7°
April 9 East limb, 5.3°
April 21 North limb, 6.7°
April 24 West limb, 4.9°

The Moon's Phases (E.S.T.):

Last Quarter	April 3 at 3:06 am
New Moon	10 at 9:39 pm
First Quarter	17 at 6:28 pm
Full Moon	24 at 8:40 pm

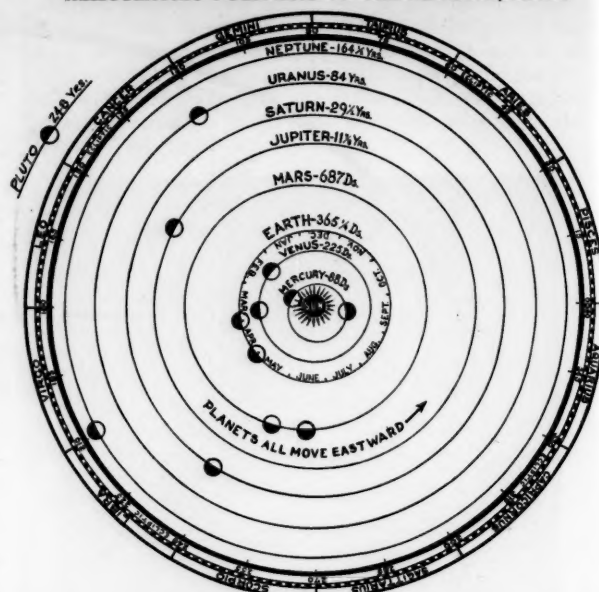
MERCURY: is in the morning sky in Pisces at the beginning of the month and too close to the Sun to be observable. It is in superior conjunction with the Sun on the 5th. This planet's motion is so rapid, however, that by month-end it is close to its greatest elongation from the Sun in the evening sky in Taurus, very near the famous Pleiades. Its magnitude then will be 0.2, making it a very bright star, and observable in the twilight zone just above the horizon. The best time to look for this elusive speedster is well before the end of twilight, preferably when the sky has become a very dark blue except for the orange-red glow in the west left by the Sun. Maximum distance, the 2nd, is 125 million miles.

VENUS: outranks by far any other planet or star in the sky. It holds sway in the evening sky in Taurus all month. At greatest elongation from the Sun on the 12th, it sets long after sunset. To the unaided eye it is an exceedingly bright star, of magnitude -3.9; in the telescope it will appear almost exactly like the Moon at quarter phase. Its disc is so large that even binoculars will show its disc. On the 1st it is 75 million miles from the earth and its apparent diameter is 21"; on the 30th, distance is 54 million miles, and diameter 29".

MARS: moves from Sagittarius into Capricornus during the month. It is a morning star, rising not long after midnight. Every day it is getting closer to the earth, and consequently brighter. During this month distance decreases from 121 to 98 million miles; magnitude increases from 0.7 to 0.3; and apparent diameter increases from 7.2" to 8.8". Mars is deceptive, though, in that it is a much smaller object in the telescope than one would expect from its visual brightness. It averages about 7/8 illuminated during April—this *gibbous* appearance being detectable in small telescopes.

JUPITER: though well past opposition, this giant remains bright—a splendid sight to the naked eye, or in opera glasses or telescopes. Magnitude averages -1.8—second only to Venus. Its flattened disc, about 41" in diameter, can be made out with the simplest optical aid, and the four bright satellites are also very easy. In fact, were it not for their nearness to the glare of their primary, they could be seen with the naked eye. Jupiter spends the month a few degrees west of Regulus, in Leo. Distance from the earth the 15th is 452 million miles.

HELIOCENTRIC POSITIONS OF THE PLANETS, APRIL



The planets are shown in their respective orbits. Two positions, one for the first, and one for the last day of the month are given for Mercury, Venus, Earth, and Mars. The arrow indicates the last day of the month. Jupiter, Saturn, Uranus, Neptune, and Pluto are shown in their mean position for the current month.

SATURN: is next in line to take over the center of attraction in the night sky as Jupiter exits. It rises shortly after sunset, and remains above the horizon for the rest of the night. It is far south of the equator, in Scorpio, not far from Antares. Its wonderful ring system is widely open as seen from the earth, and is readily apparent in even small telescopes. Distance the 15th is 849 million miles.

URANUS: is in Cancer, in the evening sky. Its magnitude, 6, puts it on the border line of naked-eye visibility. A moderately powerful telescope will reveal its neat, round disc, about 4" in diameter, but only the great instruments of the observatories can show much detail. Distance the 15th is 1718 million miles.

NEPTUNE: comes to opposition the 18th, in Virgo. But how poor an attraction this planet is. Though one of the giants, at its closest on the 19th (at 2724 million miles) its magnitude is only 7.7. It cannot, therefore, be seen with the naked eye. A twelve-inch telescope and a magnification of 100 diameters and up will reveal a dull, grayish disc.

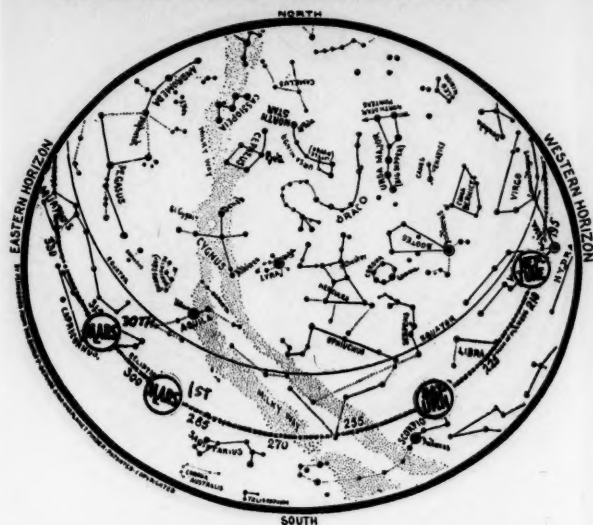
ASTRONOMICAL CALENDAR

Eastern Standard Time

APRIL 1956

April	2—12:41 am	Minimum of Algol
	3—11:56 pm	Conjunction, Mars and Moon; Mars south 4° 27'
	4—9:30 pm	Minimum of Algol
	5—8:— am	Uranus stationary in Right Ascension
	5—11:— pm	Superior conjunction, Mercury and Sun; Mercury south 0° 55'
	7—6:19 pm	Minimum of Algol
	10—3:09 pm	Minimum of Algol
	11—11:31 am	Conjunction, Mercury and Moon; Mercury south 3° 32'
	11—Noon	Mercury in ascending node
	12—1:— pm	Venus greatest elongation east, 45° 47'
	13—11:58 am	Minimum of Algol
	14—9:01 am	Conjunction, Venus and Moon; Venus north 3° 36'
	16—3:— am	Mercury in perihelion
	16—8:47 am	Minimum of Algol
	17—2:— pm	Jupiter stationary in Right Ascension
	17—8:— pm	Venus greatest heliocentric latitude north
	17—8:42 pm	Conjunction, Uranus and Moon; Uranus north 4° 39'
	18—4:— am	Quadrature, Uranus and Sun
	18—10:— pm	Opposition, Neptune and Sun
	19—5:36 am	Minimum of Algol

MORNING SKY MAP FOR APRIL



At 5:00 A.M., April 1; 4:00 A.M., April 15; 3:00 A.M., April 30

- 19— 2:15 pm Conjunction, Jupiter and Moon; Jupiter north 6° 27'
- 22— 2:25 am Minimum of Algol
- 24— 1:11 pm Conjunction, Neptune and Moon; Neptune north 5° 19'
- 24—11:14 pm Minimum of Algol
- 26— 9:— am Mercury greatest heliocentric latitude north
- 26—11:51 pm Conjunction, Saturn and Moon; Saturn north 2° 53'
- 27— 8:03 pm Minimum of Algol
- 29—11:— am Quadrature, Mars and Sun
- 30— 4:52 pm Minimum of Algol

AMATEUR'S FORUM

BY IRVING L. MEYER, M. S.
MAY 1956

THE SUN: travels from Aries into central Taurus, high in the northern hemisphere. The earth is traveling a portion of its slightly elliptical orbit taking it further away from the Sun—distance is 93.6 million miles the 1st, as against 94.2 million miles the 31st.

THE MOON: is at apogee twice—the 1st at 251,000 miles, and the 28th at 252,000 miles; it is at perigee the 12th at 226,000 miles.

Libration: Maximum exposure of the region on the Moon's limbs takes place as follows:

- May 5 South limb, 6.8°
- May 7 East limb, 6.2°
- May 18 North limb, 6.8°
- May 21 West limb, 5.7°

The Moon's Phases (E.S.T.):

- Last Quarter May 2 at 9:55 pm
- New Moon 10 at 8:04 am
- First Quarter 17 at 12:15 am
- Full Moon 24 at 10:26 am

There will be a partial eclipse of the Moon on the 24th, but not visible in the United States. This eclipse will be visible over most of Asia, Australia, the Indian Ocean, and portions of the Pacific Ocean, Africa and eastern Europe.

Circumstances of the eclipse (E.S.T.):

- Moon enters penumbra May 24 at 7:35 am
- Moon enter umbra 24 at 8:49 am
- Middle of eclipse 24 at 10:31 am
- Moon leaves umbra 24 at 12:14 pm
- Moon leaves penumbra 24 at 1:27 am

At its maximum, 97% of the Moon's diameter will be eclipsed.

MERCURY: moves in a confined area of Taurus, near the Pleiades. It is an evening star the beginning of the month, reaching greatest elongation east of the Sun, 20° 56', on the 2nd. This is a very favorable elongation for the northern hemisphere, and observers should take advantage of it. Look for a bright star close to the horizon at the top edge of the reddish sunset glow. A small telescope will show it to be a crescent, with about one-third of the surface illuminated. Its disc is about 8" in apparent diameter, or just slightly smaller than that of Mars. Later in the month it

SATELLITES OF JUPITER APRIL

Day	West	East
1	-3	20 1 4
2	-3	0 1 4
3	0 1	0 1 4
4	4	0 1 2 3
5	4	0 1 3
6	4	0 3 1
7	4	3 1 0 2
8	-4	3 1 0 2 1
9	-4	3 1 0
10	-4	1 0
11	-4	0 2 3
12	-4	0 4 3
13	-2	0 1 4
14	1 1	0 2 4
15	3	0 1 4
16	-12	1 0
17	-1	0 1 4
18	0	2 3 4
19	0	4 3
20	-2	0 1 3
21	4 1	0 2
22	4 3	0 1 2
23	4	3 2 1 0
24	4	0 2 3 1
25	-4	0 1 4
26	0 1 2	4 0 3
27	-4	2 0 1 3
28	-1	0 2
29	3	0 1 4
30	-3	2 1 0 4

Appearance of Jupiter and its satellites at 11:30 P.M., E.S.T.

as seen in an inverting telescope

becomes lost in the Sun's rays, and on the 25th enters the morning sky. It is closest to the earth, 51 million miles away, on the 27th.

VENUS: continues its sway in the in the early evening sky. It is now overtaking the earth, and will soon pass from the evening sky. On the 15th it is at greatest brilliancy, magnitude -4.2. Distance decreases from 53 million miles on the 1st, to 33 million miles the 31st. Its apparent diameter increases from 29" to 47", but the illuminated area of the disc decreases from 40% to 14%—meaning that Venus will exhibit a very large and thin crescent appearance by month-end. It is readily apparent to the naked eye in broad daylight. It travels from Taurus into Gemini during May.

MARS: continues to brighten and becomes more favorably placed for observation as the days go by. In Capricornus, it rises at about midnight. By the end of the month it is magnitude -0.3, considerably brighter than a standard first magnitude star. Though Mars cannot appear as a crescent as seen from the earth, it can become noticeably *gibbous*; this month this effect is at a maximum, with 86% of the disc illuminated. Distance continues to decrease—from 97 million miles the 1st, to 77 million miles the 31st.

JUPITER: has resumed direct eastward motion, and is bearing down on Regulus, in Leo, once again. This great planet sets at about midnight, but is still well placed for observation. Refer to the charts of the satellites for the interesting study possible with the most modest telescope aid. Distance from the earth the 15th is 494 million miles; magnitude, the same date, is -1.6.

SATURN: comes to opposition the 20th, in Libra, close to the Scorpio border. Magnitude is 0.2 which is very nearly the brightest this planet can become. The ring system is widely opened as seen from the earth, and accordingly is a fine sight in the telescope. A small telescope, also, can show up several of the satellites, Titan being brightest and easiest. It is closest to the earth the 20th at 832 million miles.

URANUS: in Cancer, can still be located in the early evening sky. However, it is being overtaken by the Sun, and in combination with its faintness, renders it relatively uninteresting. Distance the middle of the month is 1763 million miles.

NEPTUNE: though well placed for observation in Virgo, it is so remote that it can only be seen with the help of powerful binoculars or a telescope. Its magnitude is 8. Distance from the earth is 2732 million miles the 15th.

ASTRONOMICAL CALENDAR

Eastern Standard Time

MAY 1956

May 2— 5:— pm	Mercury greatest elongation east, 20° 56'
2—11:19 pm	Conjunction, Mars and Moon; Mars south 6° 39'
3— 1:41 pm	Minimum of Algol
6—10:30 am	Minimum of Algol
9— 7:19 am	Minimum of Algol
11— 2:40 pm	Conjunction, Mercury and Moon; Mercury north 1° 56'
12— 4:08 am	Quadrature of Algol
13— 2:— am	Quadrature, Jupiter and Sun
13— 8:11 am	Conjunction, Venus and Moon; Venus north 6° 10'
14— 6:— pm	Mercury stationary in Right Ascension
15—12:57 am	Minimum of Algol
15— 3:42 am	Conjunction, Uranus and Moon; Uranus north 4° 49'
15— 9:— pm	Venus at greatest brilliancy
16— 9:59 pm	Conjunction, Jupiter and Moon; Jupiter north 6° 34'
17— 9:46 pm	Minimum of Algol
19— 8:— pm	Mercury in descending node
20— 9:— am	Opposition, Saturn and Sun
20— 6:35 pm	Minimum of Algol
21— 6:42 pm	Conjunction, Neptune and Moon; Neptune north 5° 24'
23— 3:24 pm	Minimum of Algol
24—	Partial eclipse of the Moon
24— 3:34 am	Conjunction, Saturn and Moon; Saturn north 3° 4'
25— 7:— pm	Inferior conjunction, Mercury and Sun; Mercury south 1° 44'
26—12:13 pm	Minimum of Algol
29— 9:02 am	Minimum of Algol
30— 3:— am	Mercury in aphelion
31— 7:— am	Venus stationary in Right Ascension
31— 7:28 pm	Conjunction, Mars and Moon; Mars south 8° 27'

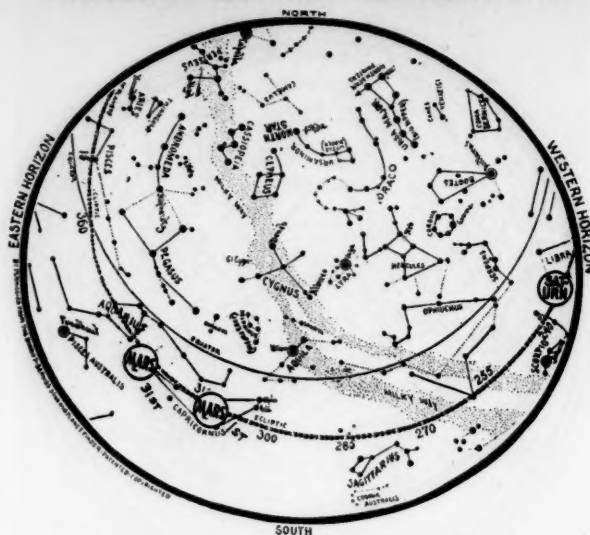
SATELLITES OF JUPITER

MAY

Day	West	East
1	3	1
2	1	4
3	1	3
4	2	4
5	1	4
6	3	1
7	3	1
8	4	1
9	4	1
10	4	3
11	4	3
12	3	1
13	4	3
14	3	1
15	3	1
16	1	3
17	1	3
18	2	3
19	1	3
20	3	1
21	3	1
22	3	1
23	1	3
24	4	3
25	4	3
26	4	3
27	4	3
28	4	3
29	4	3
30	4	3
31	4	3

Appearance of Jupiter and its satellites
at 11:00 P.M., E.S.T.
as seen in an inverting telescope

MORNING SKY MAP FOR MAY



At 5:00 A.M., MAY 1; 4:00 A.M., MAY 15; 3:00 A.M., MAY 31

AMATEUR'S FORUM

BY IRVING L. MEYER, M. S.

JUNE 1956

THE SUN: climbs to its highest point in the northern heavens, and by month-end has commenced appreciable motion toward the south. The earth is close to *aphelion* at this same time, so the Sun's distance does not vary greatly; it increases from 94.2 to 94.4 million miles during June. The Sun moves from Taurus into Gemini.

On June 8th there will be a total eclipse of the Sun. Unfortunately, almost the entire area of visibility of the eclipse, partial and total, is confined to the south Pacific Ocean. Not even a well known island lies in the path of totality. As a partial, this event under relatively poor conditions, can be seen from New Zealand.

THE MOON: is at *perigee* the 9th at a distance of 223,000 miles, and is at *apogee* the 25th at a distance of 252,000 miles.

Libration: Maximum exposure of the region on the Moon's limbs takes place as follows:

June 2	South limb, 6.8°
June 4	East limb, 7.0°
June 14	North limb, 6.8°
June 17	West limb, 7.0°
June 29	South limb, 6.8°

The Moon's Phases (E.S.T.):

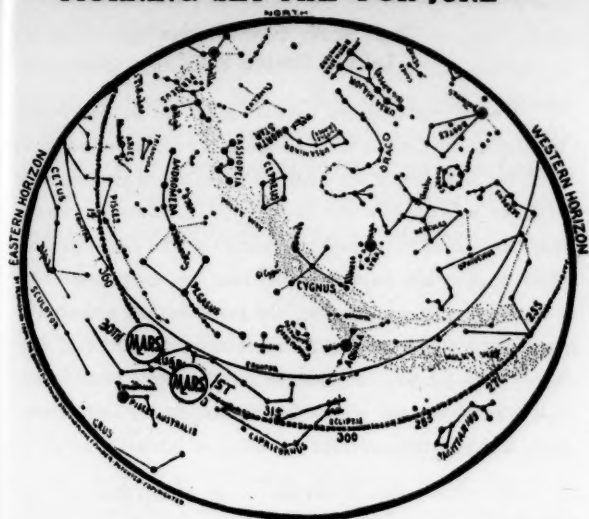
Last Quarter	June 1 at 2:13 pm
New Moon	8 at 4:29 pm
First Quarter	15 at 6:56 pm
Full Moon	23 at 1:13 pm

MERCURY: is in Taurus all month. Its angular distance from the Sun increases the first weeks of the month, reaching a maximum of 22° 46' on the 20th. It is in the morning sky and can be observed for a few days before and after the 20th. It will not be far above the horizon as dawn comes. It will be somewhat brighter than a standard first magnitude star; in the telescope it will be mildly crescent shaped. During the month, geocentric distance nearly doubles—from 52 million miles the 1st, to 96 million miles the 30th.

VENUS: retrogrades from Gemini into Taurus, and is in conjunction with the Sun on the 22nd. After that date it will be in the morning sky. Though poorly placed for observation all month on account of its proximity to the Sun, it nevertheless is an extremely interesting telescopic object. Naturally it must be observed in broad daylight. It will then appear as an extremely thin crescent of large diameter; at its closest to the earth (the 22nd) its distance of 26,900,000 produces an apparent diameter of 58". It is not a good naked eye object the entire month.

MARS: is following a north-eastwardly path through Aquarius, continuing to approach the earth, and to brighten accordingly. It rises at about midnight, and will shine as a ruddy, brilliant star the rest of the night. On the 1st, it is 76 million miles from the earth, magnitude is -0.3, and apparent diameter is 11"; on the 30th, distance is 58 million miles, magnitude is -1.0, and diameter 15". It is noteworthy that at some oppositions Mars is further from the

MORNING SKY MAP FOR JUNE



At 4:00 A.M., JUNE 1; 3:00 A.M., JUNE 15; 2:00 A.M., JUNE 30

earth than it is now—and it is still some three months from opposition.

JUPITER: is close to Regulus in Leo, setting a few hours after the Sun. It is no longer particularly well placed for observation. On the 15th, distance is 538 million miles, equatorial diameter 34", and magnitude -1.5.

SATURN: occupies the center of the stage in the evening sky. Shortly past opposition, it retrogrades slowly on the Scorpio-Libra boundary. One of the most fascinating objects to be seen in the telescope, on the 15th it is 841 million miles away, ring diameter is 41", and magnitude is 0.4.

URANUS: is in Cancer in the evening sky, but too close to the Sun all month to permit satisfactory observation. Distance the 15th is 1800 million miles.

NEPTUNE: is in Virgo in the evening sky, pretty well placed for observation. However, it is a faint, and rather uninteresting object, detectable only with optical assistance. Magnitude is 8. Distance the 15th is 2763 million miles.

ASTRONOMICAL CALENDAR

Eastern Standard Time

JUNE 1956

June 1— 5:50 am	Minimum of Algol
4— 2:39 am	Minimum of Algol
6—11:— pm	Mercury stationary in Right Ascension
6—11:28 pm	Minimum of Algol
7— 1:10 pm	Conjunction, Mercury and Moon; Mercury south 4° 48'
8—	Total eclipse of the Sun
9— 8:17 pm	Minimum of Algol
9—11:35 pm	Conjunction, Venus and Moon; Venus north 3° 14'
11— 1:34 pm	Conjunction, Uranus and Moon; Uranus north 4° 53'
12— 5:06 pm	Minimum of Algol
12—10:— pm	Venus in descending node
13—10:08 am	Conjunction, Jupiter and Moon; Jupiter north 6° 36'
15— 1:54 pm	Minimum of Algol
17—11:27 pm	Conjunction, Neptune and Moon; Neptune north 5° 24'
18—10:43 am	Minimum of Algol
19—10:— am	Mercury greatest heliocentric latitude south
20— 3:— am	Mercury greatest elongation west, 22° 46'
20— 6:12 am	Conjunction, Saturn and Moon; Saturn north 3° 10'
21— 5:24 am	Sun enters Cancer; Solstice
21— 7:32 am	Minimum of Algol
22— 1:— am	Inferior conjunction, Venus and Sun; Venus south 2° 8'
24— 4:21 am	Minimum of Algol
27— 1:09 am	Minimum of Algol
29— 8:37 am	Conjunction, Mars and Moon; Mars south 9° 50'
29— 9:58 pm	Minimum of Algol

SATELLITES OF JUPITER

JUNE

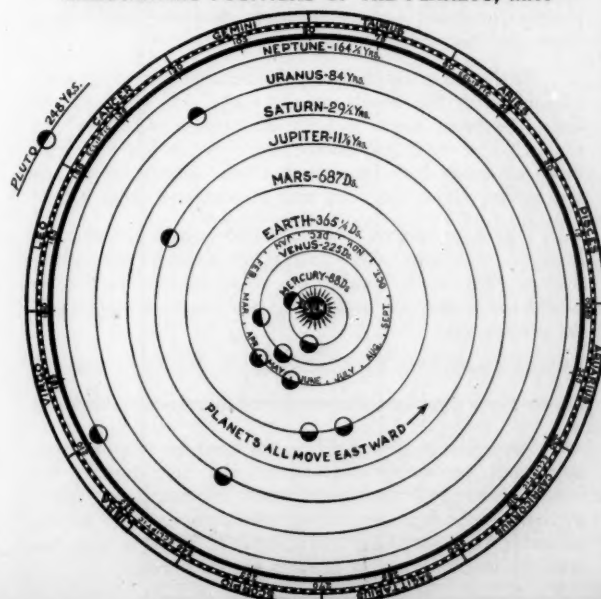
Day	West	East
1	2· -1	○ 4 3·
2	-2	○ 1· 3· -4
3	3· -1	○ 2 -4
4	○ 1· 3·	2○ -4
5	-3 2·	○ 1 -4
6	1· -3	○ 4· -2●
7	○ -1 2· -3	4·
8	2·	○ 3· 4·
9	-2	○ 1· 3·
10	4· -1	○ -2
11	3·	1○ 2·
12	4· -3 2·	○ -1●
13	4·	3· -2●
14	-4	○ -1 3·
15	-4	1· 2· ○ -3
16	-4	-2 ○ 1· 3·
17	○ 3·	-4 -1 ○ -2
18	3·	○ 1· 2· -4●
19	-3 2·	○ -4 -1●
20	-3	1· 2· -4
21	○ -1	-2 -4
22	1· 2·	○ -3 -4
23	-2	○ -1 3· 4·
24	-1	3· -2 4·
25	3·	○ 1· 2· 4·
26	-3 2·	○ 1·
27	○ 1·	-3· -2 ○
28	4·	○ -1 -2
29	○ 2· 4·	1· -3
30	4·	-2 ○ -1 3·

Appearance of Jupiter and its satellites at 10:15 P.M., E.S.T.

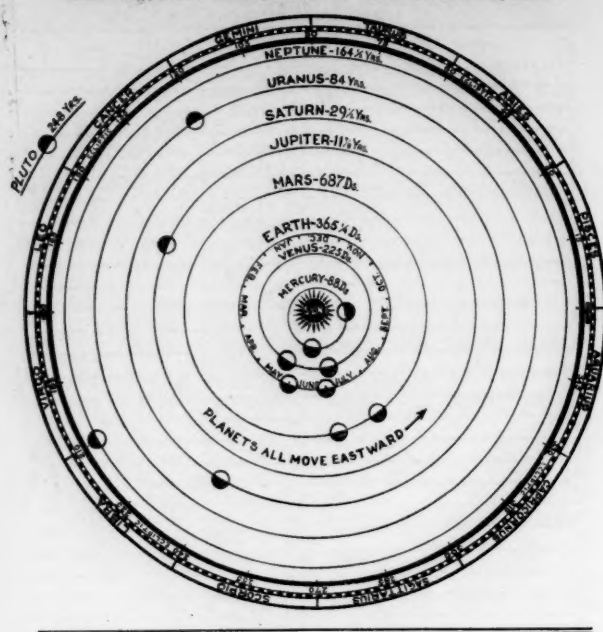
as seen in an inverting telescope

Jupiter is represented by the disc in the center of the chart, and each satellite by a dot and its appropriate number. The direction of the satellite's motion is from the dot toward the numeral. The numeral and light disc at the left margin of the chart indicates a satellite in transit across Jupiter's disc; the numeral and dark disc at the right margin indicates a satellite which is invisible because it is being eclipsed or occulted by Jupiter. This chart must be held upside down if binoculars, opera glasses, or an erecting type telescope is used.

HELIOCENTRIC POSITIONS OF THE PLANETS, MAY



HELIOCENTRIC POSITIONS OF THE PLANETS, JUNE



BOOK REVIEW

GUIDE TO THE STARS

by HECTOR MACPHERSON

(Philosophical Library, New York)

This handbook on practical astronomy by DR. HECTOR MACPHERSON, who is the author of numerous books on the subject, does not assume any previous knowledge on the part of the reader.

It has two special features. First, it takes the reader, step by step, through the constellations, showing him by exact but simple directions how to identify them and to name the most important individual stars. Second, in addition to many black-and-white diagrams and photographic reproductions of stars and planets, it contains a series of special coloured maps of the constellations, which are greatly simplified for identification purposes, and clearly show the magnitudes of the separate stars.

By the aid of this book the reader should easily become familiar with the details of the night sky. He will also learn the most recent results of modern discovery and research—an important matter, since in the last few years many additions have been made to our knowledge of and speculation about the stars and planets and their nature.

This new edition has been thoroughly revised and brought up-to-date, and contains an entirely new introductory chapter, in which Dr. Macpherson traces very briefly the history of astronomy from the earliest times to the present day.

(Available through the *Monthly Evening Sky Map* \$2.75, postpaid)

Your address, as printed on the mailing wrapper, contains your expiration information—the first digit is the *issue number*, followed by the year. For example, "2-57" means that the last issue of the subscription would be the second (April-May-June) of 1957. If there is any discrepancy in expiration, or address, kindly advise.

EASY TO PROVE EARTH REVOLVES

"The North Star Finder"

Tells of Simple Way

Several years ago, a woman down in the backwoods country of the Ozarks said she knew the earth did not turn over, because the pot she hung on the crane of her fireplace at night was there in the morning. A great many persons may have difficulty in comprehending that the earth revolves upon its axis once in each twenty-four hours, spinning like a top. For such persons the late Leon Barritt prepared a small chart which can be carried in anyone's pocket. "The North Star Finder," suggests a simple experiment which will interest any one who will take the trouble and two or three hours of time to make it.

Up in the northern heavens is the North Star, plainly visible these clear nights. If you are not already acquainted with it, the way to find it is to first locate the constellation of the Great Bear, the "Dipper," so called because the seven star composing it form the exact outline of a dipper and its handle.

It will be seen evenings in the northeast. Having found it, you draw an imaginary line, beginning at the star forming the bottom of the bowl farthest from the handle, out through the stars marking the rim of the dipper opposite the handle, and you extend that straight line out until it intercepts a star brighter than any near it, and at a point due north. That is the North Star, and small as it looks, it is an enormous sun, nearly 100 times larger than our own sun.

Sit down some evening where the view of the northern heavens is unobstructed and watch the old earth whirl around. You will have to stay two or three hours, but the vigil will be worth while.

The axis of the earth, around which it rotates, if extended beyond the very North Pole, would reach up to a point very close to the North Star. Therefore, as the earth revolves, the North Star seems to stand still, while the other stars seem to revolve around it. Thus, sitting in your chair, watching the northern sky, you will see the stars above the North Star move westward, those below move eastward, those to the right upward.

Even in an hour of watching you will see quite a change in the positions of the stars, but three hours is better, and will give you a vivid realization that the earth where you sit is whirling eastward, and as the rim of your horizon obscures the view below it you can see stars coming up into view in the northwest as you whirl, and stars sinking behind the northwestern horizon, and all the stars seemingly in motion around the North Star.

To make the time pass more quickly it would be well to have company and conversation. Then you can let your imagination rove around the earth to where millions of people see those same stars looking down upon them each night. The stars you see come up above the rim in the east have just a few hours before been right above London, Tokyo and Honolulu and in the ages past they have lighted a thousand cities and many civilizations.

And if you want to converse of the past you may recall that when the pyramids of Egypt were built this star was not the north star, but then Alpha Draconis was the north star. And projecting your mind into the future some 12,000 years you can imagine the time when this north star of ours will have moved out and the star Vega, a vast sun many times larger than this, will be the north star for many generations of men, though, as Professor Serviss said, "Every one should know the "North Star". You cannot be lost if you have it to guide you."

Solstice Story Turns Sun's Face Red— It's Really Today

By PATRICK SKENE CATLING

All is well, solstice-lovers: the 1955 winter solstice has not slipped by, after all, the Weather Bureau to the contrary notwithstanding.

The winter solstice, when the sun enters Capricornus, shall be yours to enjoy in Baltimore at 10:12 A.M. today.

As you may well imagine, the Weather Bureau at Friendship International Airport has got us into a pretty pickle with its statement, reported in yesterday morning's *Sun*, that the winter solstice had already occurred on Tuesday.

Already the complaints from indignant experts on the winter solstice have started pouring in—a phone call and a letter—and we prefer not to think what this has done to our standing in astronomical circles.

Mrs. W. Richard Roessler, of 5211 Old Frederick Road, was the first to supply the correct solstitial data.

The Enoch Pratt Free Library confirmed that *The Monthly Evening Sky Map* (October-November-December issue), a "scientific journal and educational guide in astronomy for the amateur," gave 10:12 A.M. today as the time for the solstice.

The Weather Bureau yesterday was quite ready to acknowledge the error.

The bureau's Washington publication, *Topics*, agrees with *The Monthly Evening Sky Map*—December 22, 10:12 A.M.

A spokesman for the Friendship office put his finger right on the earlier trouble. He said:

"Someone here must have made a mistake."

Far be it from us to suggest that the weathermen at Friendship are a bunch of amateurs, but wouldn't it be nice if Santa Claus gave the Weather Bureau a subscription to this authoritative journal?

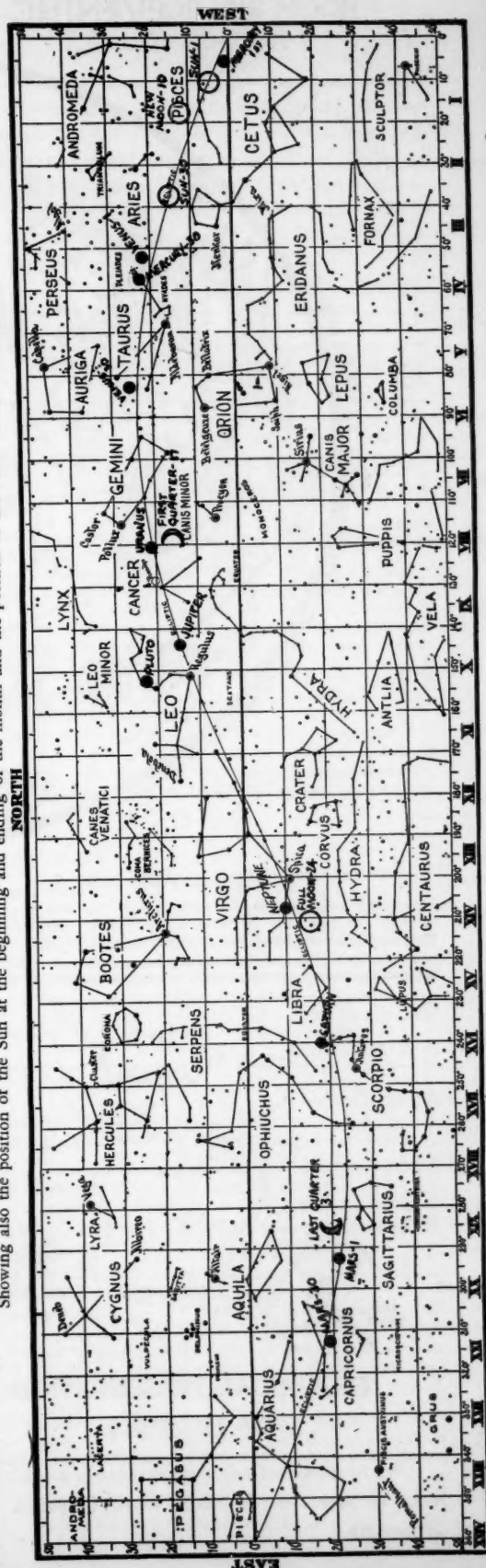
No ill feelings, Mrs. Roessler, we hope.

Happy winter solstice, everyone.

—*The Baltimore Sun*, December 22, 1955.

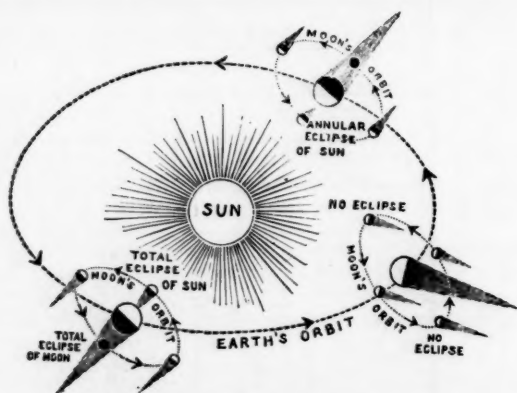
A MERCATOR PROJECTION OF THE STAR FIELD FOR 50° NORTH AND 50° SOUTH OF THE EQUATOR

The Star Field makes an apparent complete revolution westward every 24 hours, hence the hourly division from I to XXIV, but this has no relation to the time that any portion of the map is in view. Practical as a Star, Constellation and Planet Finder for the current month—April, 1956—Anywhere in the world. Showing also the position of the Moon at its several phases.



7:30 P.M., JUNE 30

Face South and hold the Map overhead, the top North, and you will see the stars and planets just as they appear in the heavens. The arrow through the two stars in the bowl of the Big Dipper points to the North Star, the star at the end of the handle of the Little Dipper. This map is arranged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitudes in Europe.



We have two eclipses this quarter, one a partial of the Moon on May 24th, the second a total eclipse of the Sun on June 8th.

Dr. C. D. Shane, Director of Lick Observatory, announced the discovery of a 15th magnitude comet far below the equator, in Hydra, by C. A. Wirtanen. Motion is north-west, and very slow.

Dear Mrs. Barritt,

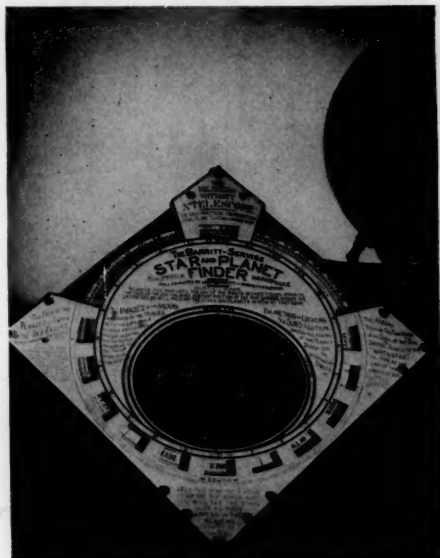
Just a line to express my pleasure about the "Star and Planet Finder," which arrived today.

I am pleasantly surprised at the large size and rugged construction, the easily understood directions and the ingenious disk system — and regret only that I did not order this several years back when I started to read "The Monthly Evening Sky Map."

With best wishes,
Willard E. Robinson

THE BARRITT-SERVISS STAR and PLANET FINDER

"The Heavens Without A Telescope"
A MOVING PICTURE OF THE UNIVERSE



THE ONLY COMBINATION SUN, MOON, STAR AND PLANET FINDER

Pronounced by Professional Astronomers the most remarkable representation of the Heavens ever published. Requires no technical knowledge to use it.

COLLABORATED BY LEON BARRITT AND GARRETT P. SERVISS
Patented and Copyrighted.

The Planets, the Sun and the Moon are made to move through their regular orbits by a system of Disks which are entered upon the map at stated periods by a simply arranged system of Tables extending over a period of years, so that their true positions are located at the date of entry, enabling anyone to follow the progress of these great travelers of the sky with delight and intellectual profit. Tells their time of rising and setting.

The Chart is 15 x 15 inches square and has a revolving disk map showing all the stars visible to the naked eye in the Northern Hemisphere, down to the 4th magnitude. The map is arranged specially for Latitude 40, North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitudes in Europe.

It is made of heavy cardboard, securely mounted and with any sort of fair usage should last a lifetime. It has a strong, firmly attached metal hanger and will make a striking and attractive appearance upon the wall of any library.

Students of Aviation, Navigation, and Science will find the Star and Planet Finder of utmost importance in their studies.

Recommended and used by Aviators, Navigators, Engineers, Surveyors and those interested in Astronomy.

Price \$7.00

AVAILABLE SOON THE SOUTHERN HEMISPHERE

BARRITT-SERVISS STAR AND PLANET FINDER

Similar to the Northern Hemisphere, but arranged for use south of the equator—specifically for latitude 40° south. It will be available soon, as a new edition is now on the press.

Price \$7.00, plus \$1.00 postage outside North America.

ELGER'S MAP OF THE MOON NEW 1955 EDITION

We have ready for distribution this brand new edition of Elger's famous lunar map, with revisions and notes by H. P. Wilkins. The notes provide pertinent data regarding almost 150 famous and interesting items on the lunar landscape—seas, mountains, etc.—and are printed by quadrant, beneath the highly detailed chart of the Moon. Approximately 20 x 30 inches overall, heavily cloth-backed for use at the telescope.

Price \$3.25, postpaid.

ASTRONOMICAL GLOSSARY

A pocket-sized booklet defining the important terms used by astronomers. Invaluable to the beginner, and useful to anyone.

Price \$1.00

BARRITT'S CELESTIAL ALBUM

A superbly-printed album reproducing 160 of the most famous astronomical photographs ever taken - - photographs made largely at the world's great observatories. Everything in astronomy is covered - - Sun, Moon, planets, star clusters, nebulae, etc. Size 9 x 12 inches.

Price \$4.00

THE NORTH STAR FINDER

A practical, useful guide to the north circumpolar region, including the North Star (Polaris) and the other prominent stars in the area. It has a revolving disc which permits it to be set to the hour and day of the year and will then show the appearance of the circumpolar region. A very useful aid in astronomy, navigation, surveying, etc.

Price \$1.00

ROMANCE OF THE ASTRONOMERS

A booklet of the best poems of an astronomical nature.

Price \$1.00

Make all remittances payable to "The Monthly Evening Sky Map".

BOOKS

GUIDE TO THE STARS

See "Book Review"

by HECTOR MACPHERSON
Price \$2.75

SPACE TRAVEL

by KENNETH W. GATLAND AND ANTHONY M. KUNESCH

The history of rocket development from the days of the first discovery of an explosive mixture before the birth of Christ; also the latest information on the harnessing of the tremendous new propellants available to-day, which may soon make journeys into space a commonplace of human life.

Illustrated
Price \$4.75

FROM COPERNICUS TO EINSTEIN

by HANS REICHENBACH

This is a simple but scientific history of the ideas and discoveries that have led to the formulation of the theory of relativity.

Price \$3.00

THE ATOM STORY

by J. G. FEINBERG

Here is the first complete and balanced book on the atom in the language of the layman.

Price \$4.75

JOHANNES KEPLER: LIFE AND LETTERS

by CAROLA BAUMGARDT
With an introduction by Albert Einstein

This is the first biography of the father of modern astronomy to employ the voluminous correspondence which Kepler conducted with the royalty of Europe and the leading scholars and laymen of his time.

Illustrations include facsimiles of manuscripts by Kepler
Price \$3.75

Mailed postpaid. Make remittances payable to

THE MONTHLY EVENING SKY MAP

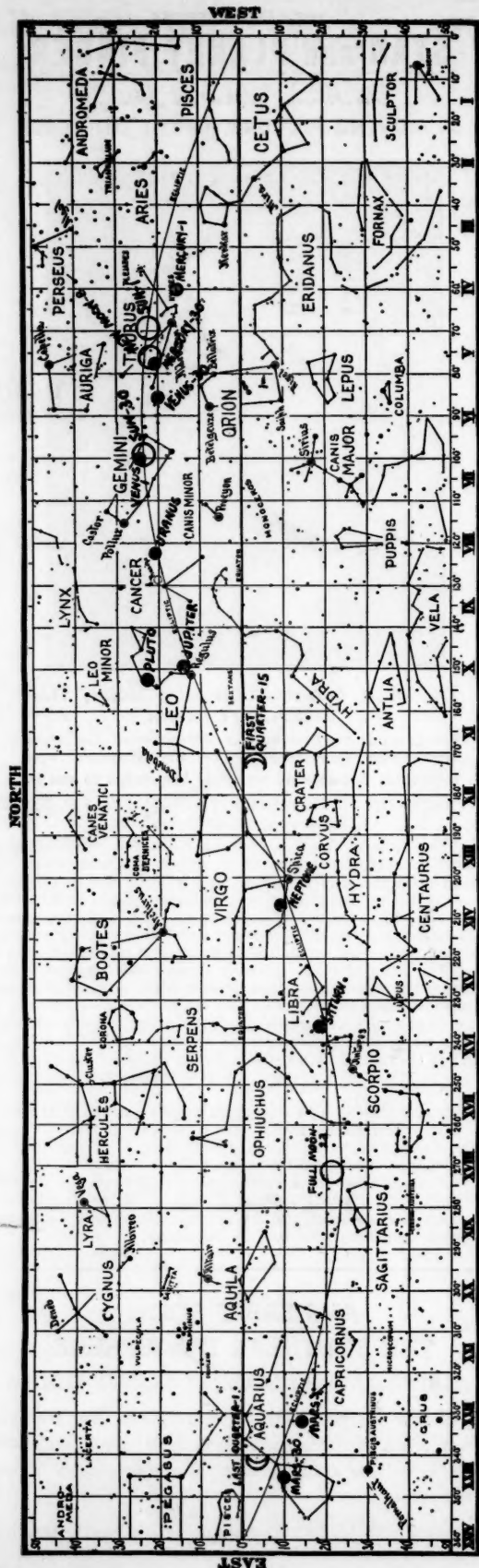
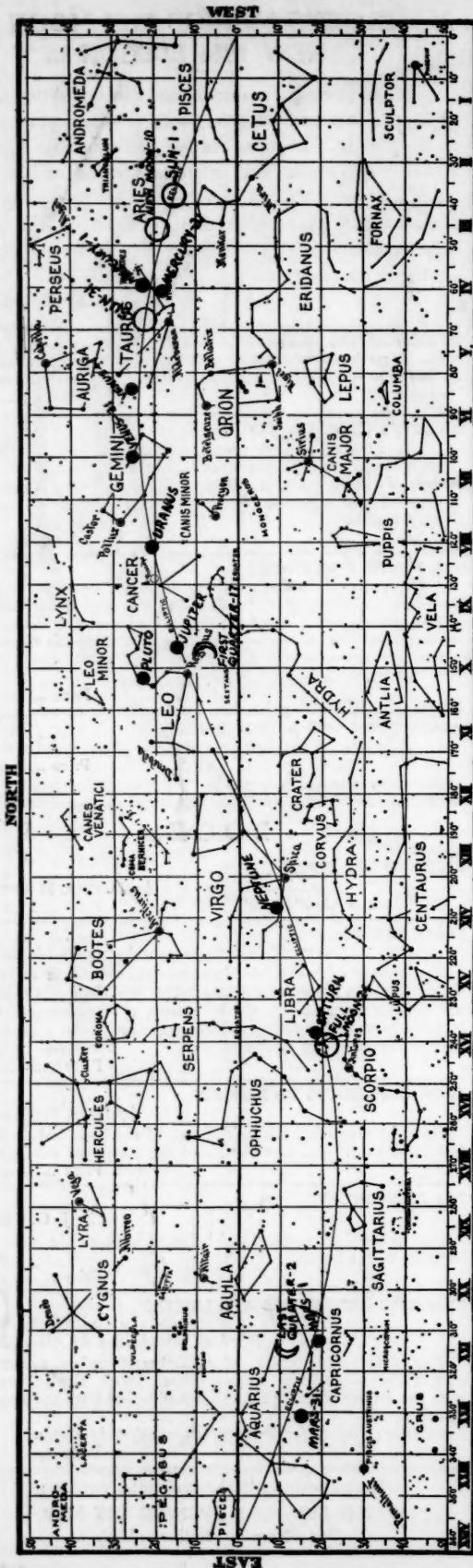
Box 88

Rutherford, N. J.

A MERCATOR PROJECTION OF THE STAR FIELD FOR 50° NORTH AND 50° SOUTH OF THE EQUATOR

The Star Field makes an apparent complete revolution westward every 24 hours, hence the hourly division from I to XXIV, but this has no relation to the time that any portion of the map is in view. Practical as a Star, Constellation and Planet Finder for the current months— May - June, 1956—Anywhere in the world.

Showing also the position of the Sun at the beginning and ending of the month and the position of the Moon at its several phases.



Nov. 5 Oct. 22 Oct. 5 Sept. 20 Sept. 5 Aug. 20 Aug. 5 July 20 July 5 June 20 June 5 May 20 May 5 Apr. 20 Apr. 5 Mar. 20 Mar. 5 Feb. 18 Feb. 2 Jan. 20 Jan. 5 Dec. 20 Dec. 5 Nov. 20

THE DATE BELOW EACH NUMERAL WILL SHOW WHEN THAT SECTION OF THE MAP WILL BE ON THE MERIDIAN—DUE SOUTH—AT 9 P.M. OR AN HOUR EARLIER FOR EACH NUMERAL WEST OF THIS DATE AND AN HOUR LATER FOR EACH NUMERAL EAST.